

To: Brazos G Regional Water Planning Group	
From: David Dunn, PE	Project: Brazos G 2011 Regional Water Plan
CC: Trey Buzbee, Brazos River Authority	
Date: February 12, 2009	Job No: 00010486-001

RE: Methods to develop groundwater availability estimates for the 2011 Brazos G Regional Water Plan

Groundwater availability estimates used in the regional water planning process are determined on an aquifer-by-aquifer, county-by-county basis, e.g., how much groundwater can be reliably supplied by aquifer X in county Y? For the 2006 Brazos G Regional Water Plan (2006 Plan), groundwater availability estimates adopted by the Brazos G Regional Water Planning Group (BGRWPG) were developed using one the following three generalized methodologies:

1. Previous estimates, typically made by earlier studies conducted by the Texas Water Development Board (TWDB), were adopted;
2. Analysis of historical pumping records, groundwater level data, and knowledge of the hydrogeology of the aquifer system; or
3. Application of a groundwater availability model (GAM) developed by the TWDB. A GAM does not directly determine groundwater availability, but simply demonstrate the response of an aquifer system over time to a specific pattern and level of pumping. Only the GAM for the Carrizo-Wilcox Aquifer System (C-W Aquifer) was available at the time the 2006 Plan was prepared.

HDR assisted the BGRWPG in selecting estimates of groundwater availability by offering recommendations developed through one of the above methods, depending on the aquifer system in question. The BGRWPG appointed a groundwater committee to review the recommendations made by HDR, and to report back and recommend availability estimates to the larger planning group. The availability estimates were adopted with little public comment for most of the aquifer systems, except for the C-W Aquifer.

Significant effort was devoted to adopting water availability estimates for the C-W Aquifer, as there were considerable differences of opinion from various parties as to what future groundwater conditions would be most appropriate. The C-W Aquifer GAM was applied with various levels of pumping assumed, and the groundwater committee was presented with potential groundwater level declines under each of the various pumping scenarios investigated. Ultimately, the groundwater committee recommended, and the BGRWPG adopted, estimates that were very similar to historical TWDB estimates of groundwater availability.

House Bill 1763 of the 79th Texas Legislature (2005) established a process by which estimates of Managed Available Groundwater (MAG) will be determined on a regional basis by groups of groundwater conservation districts assigned to regional Groundwater Management Areas (GMAs). MAG for a given aquifer system will be determined by the TWDB using completed GAMs, based upon Desired Future Conditions (DFCs) that are selected by the groundwater conservation districts in a GMA. For the 2011 Plan, regional water planning groups are required to use the MAG resulting from the GMA process if a GMA establishes its DFCs by January 2008. On January 15, 2008, the BGRWPG sent a letter to each GMA in the Brazos G Area informing them that the BGRWPG would adopt the MAG resulting from their process if that MAG was determined prior to September 30,

2008. The letter also stated that the BGRWPG would utilize the 2006 groundwater availability estimates, but might also refine those estimates if the group decided it was appropriate.

Of the five GMAs affecting the Brazos G Area (GMA Nos. 6, 7, 8, 12 and 14), only GMA 8 had adopted MAG estimates by September 30, 2008. Consequently, the BGRWPG is free to assign groundwater availability estimates as it sees fit, and only use MAGs resulting from the GMA process for the aquifers for which GMA 8 established DFCs by the January 2008 deadline, or final MAG estimates by September 30, 2008. However, several GMAs appear close to finalizing DFCs and have initial estimates of MAG based on draft DFCs that are likely to be close to the final MAG determined by the TWDB. Consequently, HDR will recommend to the BGRWPG the following procedure for selecting estimates of groundwater availability to be used in the 2011 Plan.

1. Adopt MAG estimates for the aquifers in GMA 8 for which MAG has been determined by March 1, 2009.
2. For GMAs nearing adoption of DFCs, for which an initial MAG has been estimated, utilize this MAG if it appears probable that the final MAG will be reasonably similar to the initial MAG estimate. HDR has begun researching the status of the various GMA processes and will report back at the April BGRWPG meeting if any interim MAGs are recommended for adoption by the BGRWPG for the 2011 Plan.
3. Utilize the groundwater availability models recently updated by the TWDB for the C-W Aquifer and the Trinity Aquifer to estimate future aquifer conditions under the groundwater availability estimates adopted for the 2006 Plan. Evaluate these estimated conditions and decide if revisions to the 2006 estimates are warranted. This specific task is included in the scope of work to develop the 2011 Plan. These model simulations will be presented to the BGRWPG at the April 2009 meeting.
4. For all aquifers/counties for which groundwater availability estimates are not modified by the previous three activities, adopt the groundwater availability estimates utilized in the 2006 Plan.

HDR will prepare a memorandum that will be provided to the BGRWPG by the end of March 2009 that will list our recommendations for groundwater availability estimates to be used in the 2011 Plan, for the BGRWPG to consider adopting at the April 2009 meeting.